

Novel SH2containing inositol 5'-phosphatase isoform that partners with the Grb2 adapter protein

Abstract

SH2 containing inositol 5"-phosphatase (SHIP) modulates the activation of immune cells after recruitment to the membrane by Shc and the cytoplasmic tails of receptors. A novel SHIP isoform of approximately 104 kd expressed in primitive stem cell populations (s-SHIP) is described. It was found that s-SHIP is expressed in totipotent embryonic stem cells to the exclusion of the 145-kd SHIP isoform expressed in differentiated hematopoietic cells. s-SHIP is also expressed in primitive hematopoietic stem cells, but not in lineage-committed hematopoietic cells. In embryonic stem cells, s-SHIP partners with the adapter protein Grb2 without tyrosine phosphorylation and is present constitutively at the cell membrane. It is postulated that s-SHIP modulates the activation threshold of primitive stem cell populations.